

**Amendments to the Claims:**

1. (Currently Amended) A tunable edge-emitting semiconductor laser comprising:  
a resonant cavity delimited by a fixed reflector and an adjustable reflector;  
an active section with a gain of length  $L_1$  creating a first section of the resonant cavity;  
and  
a tunable section of length  $L_2$  creating a second section of the resonant cavity,  
wherein a total length of the active section and the tunable section cavity  $L = L_1 + L_2$  is less than or equal to 20  $\mu\text{m}$ .
2. (Previously Presented) The tunable laser according to claim 1, wherein the length  $L_1$  of the active section is from 5  $\mu\text{m}$  to 12  $\mu\text{m}$ .
3. (Previously Presented) The tunable laser according to claim 1, wherein the length  $L_2$  of the tunable section depends on the tuning range of the laser in accordance with the following equation:  
$$\Delta\lambda = \lambda^2/2(n_1L_1+n_2L_2)$$
  
where  $\Delta\lambda$  is the tuning range of the laser,  
 $\lambda$  is the emission wavelength of the laser, and  
 $n_1, n_2$  are the respective refractive indices of the first and second sections of the laser cavity.
4. (Previously Presented) The tunable laser according to claim 3, wherein the tunable laser has a continuous tuning range  $\Delta\lambda$  greater than or equal to 30 nm.
5. (Previously Presented) The tunable laser according to claim 1, wherein the fixed reflector and the adjustable reflector each have a reflectivity greater than or equal to 90%.
6. (Previously Presented) The tunable laser according to claim 1, wherein the fixed reflector is an etched mirror.
7. (Previously Presented) The tunable laser according to claim 6, wherein the etched mirror of the fixed reflector is an alternation of semiconductor and air.
8. (Previously Presented) The tunable laser according to claim 6, wherein the etched mirror of the fixed reflector is an alternation of polymer and air.

9. (Previously Presented) The tunable laser according to claim 6, wherein the etched mirror of the fixed reflector is an alternation of semiconductor and polymer.
10. (Previously Presented) The tunable laser according to claim 6, wherein the fixed reflector is on a front face of the active section.
11. (Previously Presented) The tunable laser according to claim 1, wherein a rear face of the active section is antireflection treated.
12. (Previously Presented) The tunable laser according to claim 1, wherein the adjustable reflector is a mirror external to the laser cavity.
13. (Currently Amended) The tunable laser according to claim 12, characterized in that the adjustable reflector ~~(20)~~ is of etched silicon.
14. (Currently Amended) The tunable laser according to claim 12, wherein ~~that~~ the adjustable reflector is of nickel.
15. (Previously Presented) The tunable laser according to claim 12, wherein the adjustable reflector is of dielectric deposited on silicon.
16. (Currently Amended) The tunable laser according to ~~any one of claims~~ claim 12, wherein the mobile reflector is controlled by a micro-electro-mechanical (MEM) controller.
17. (Previously Presented) The tunable laser according to claim 1, wherein the tunable section is an air area.
18. (Previously Presented) The tunable laser according to claim 1, wherein the tunable section is a gas area.

Claims 19-22 (Canceled)